

## AMENDMENT

### IN THE CLAIMS:

Please amend the claims as follows:

1. (Previously presented) A nano-twin copper material with ultrahigh strength and high electrical conductivity comprising roughly equiaxed submicron-sized grains, inside each grain, there twin lamellae with different orientations and high density; and the twin lamellae with the same orientations are inter-parallel; the thickness of the twin lamellae range from several nanometers to 100 nm; and the lengths from 100-500 nm.
2. (Previously presented) The nano-twin copper material with ultrahigh strength and high electrical conductivity according to claim 1, wherein the nano-twin copper material has, at a temperature of 293 K, a density of  $8.93 \pm 0.03 \text{ g/cm}^3$ , a purity of  $99.997 \pm 0.02 \text{ at\%}$ , a yield strength of  $900 \pm 10 \text{ MPa}$ , an elongation of  $13.5 \pm 0.5\%$ , a tensile strain rate of  $6 \times 10^{-3}/\text{s}$ , an electrical resistivity of  $(1.75 \pm 0.02) \times 10^{-8} \Omega \cdot \text{m}$ , and a temperature coefficient of resistivity of  $6.78 \times 10^{-11} \text{ K}^{-1}$ .
3. (Previously presented) The nano-twin copper material with ultrahigh strength and high electrical conductivity according to claim 1, wherein the size of the grains range from 300-1000 nm.
4. (Currently amended) A method for producing a nano-twin copper material with ultrahigh strength and high electrical conductivity according to claim 1, which comprises performing electrodeposition using an electron purity grade  $\text{CuSO}_4$  solution having a pH of 0.5-1.5 and ion-exchanged water or distilled water as an electrolyte, 99.99% pure Cu sheet ~~as the~~ as an anode, an iron sheet or a low carbon steel sheet with surface plated by a Ni-P amorphous layer as a cathode; and an additive comprising 0.02-0.2 mL/L gelatine aqueous solution with concentration of 5-25% and 0.2-1.0 mL/L high-purity NaCl aqueous solution with concentration of 5-25%;

with a pulse current density of  $40\sim 100\text{ A/cm}^2$ ; an on-time ( $t_{\text{on}}$ ) of  $0.01\sim 0.05\text{ s}$  and an off-time ( $t_{\text{off}}$ ) of  $1\sim 3\text{ s}$ ; a distance of  $50\sim 100\text{ mm}$  between the anode and the ~~cathode~~ cathode, and the anode to cathode area ratio of  $30\sim 50:1$ ; and

electromagnetically stirring at a temperature of  $15\sim 30\text{ }^{\circ}\text{C}$ .